

YOUR AI INNOVATION PARTNER

Deep Learning Opportunities for Industry

8 Dec 2020

About Us

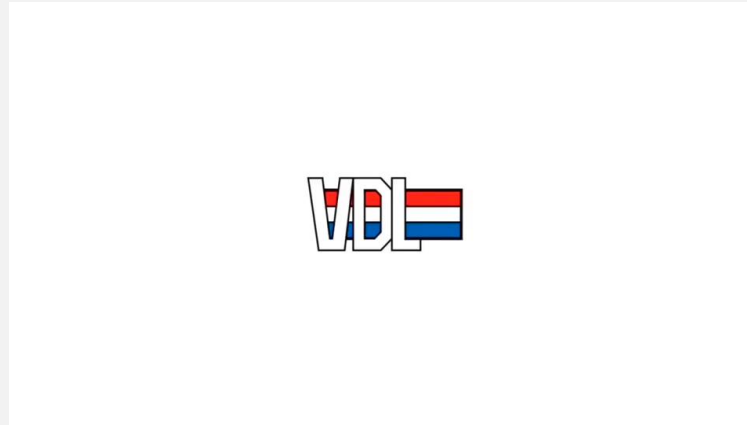
- Founded in 2018
- AI / deep learning company
- Industrial applications: manufacturing, logistics, robotics and agriculture
- Contact: info@vbt.nl
- www.vbti.nl



WHAT WE DO!



MASTERCLASSES



CONSULTANCY



PRODUCT

AI is on the agenda of the industry!

“[...] by using AI we can turn data into actionable insights [...]”

“[...] optimize conditions in the stable faster [...]”

“[...] optimise a radar system [...]”

“[...] use AI for problems we cannot understand fully [...]”

“[...] we want to detect defects before they occur [...]”

“[...] produce less waste [...]”

AI IN BRAINPORT EINDHOVEN



<https://www.youtube.com/watch?v=bRix1mC1Xhg>



Deep Learning is the latest Artificial Intelligence trend

Artificial Intelligence

Creating machines that sense, reason, act and adapt



Machine Learning

Algorithms that uses data to improve performance



Deep Learning

Training deep neural networks with big data



1950's

1960's

1970's

1980's

1990's

2000's

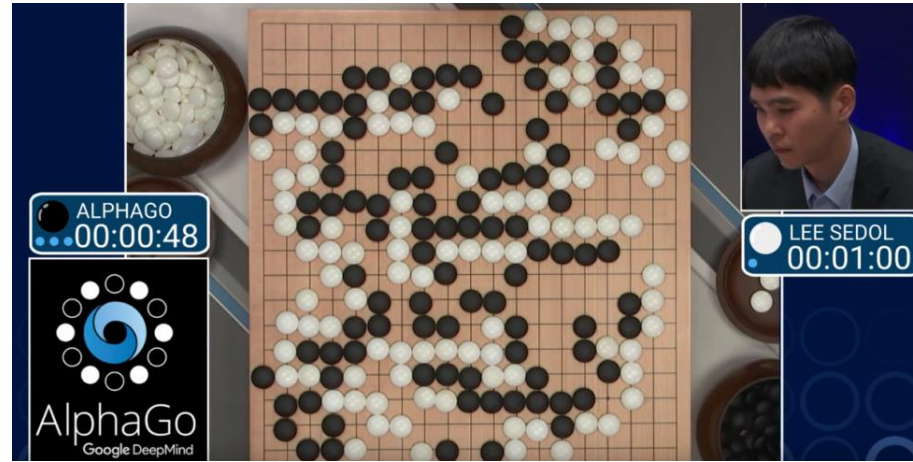
2010's

2020's

Deep learning 'consumer' successes



SELF-DRIVING CAR



WORLD CHAMPION GO



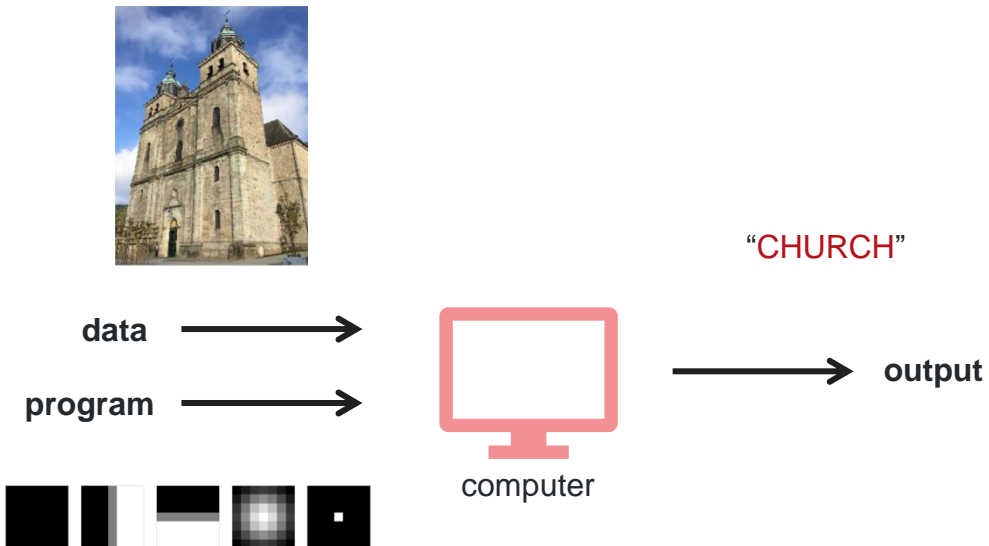
SMART ASSISTENT

Next wave of industrial deep learning applications has started!

Deep Learning is a new way of programming

It enables applications not possible by domain experts only

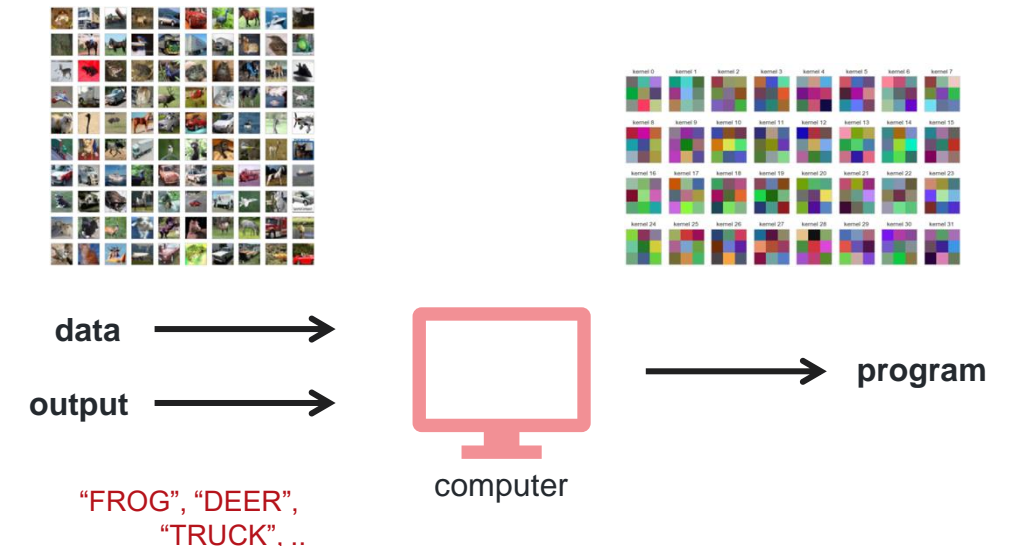
Traditional way of programming



Key success drivers

- expert domain knowledge
- model assumptions

New way of programming



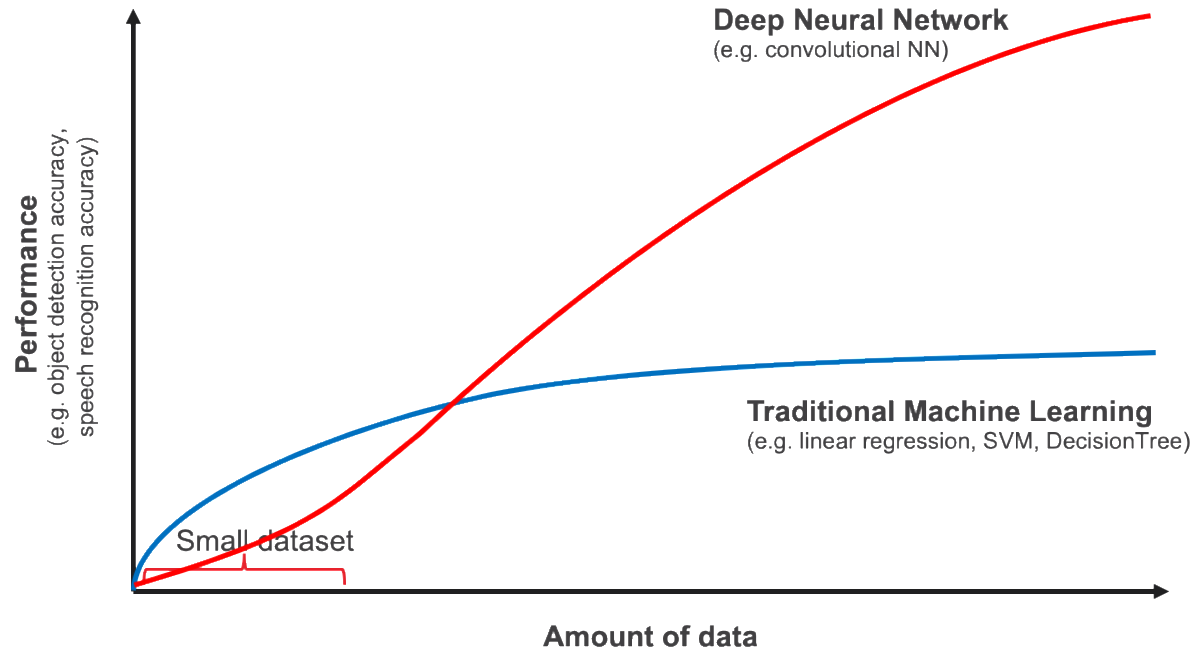
Key success drivers

- richness of dataset
- AI/ML training (deep learning)

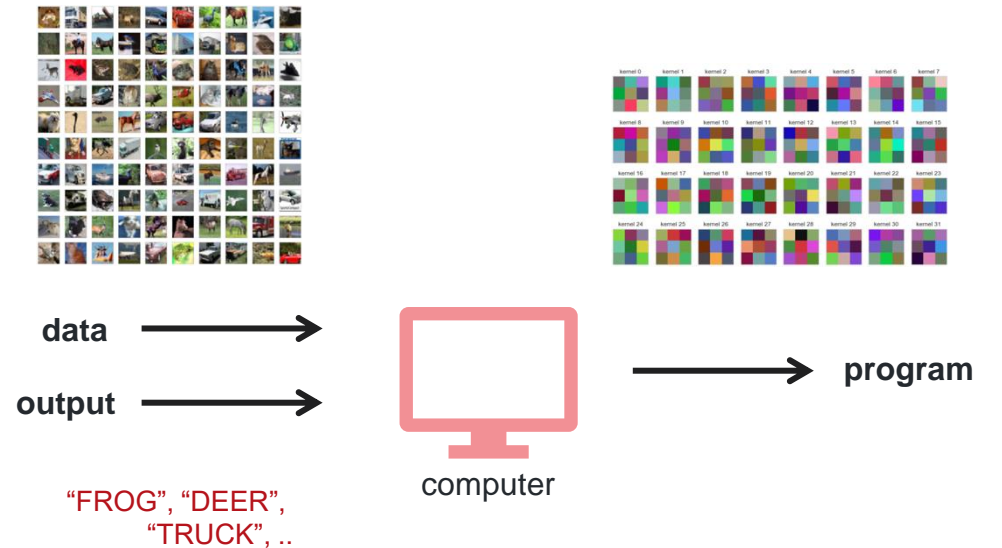
Advantages of deep learning

Algorithms become better and adaptive

Outperforms traditional techniques



Learns from real-world data



Three mature deep learning technologies

VISION 

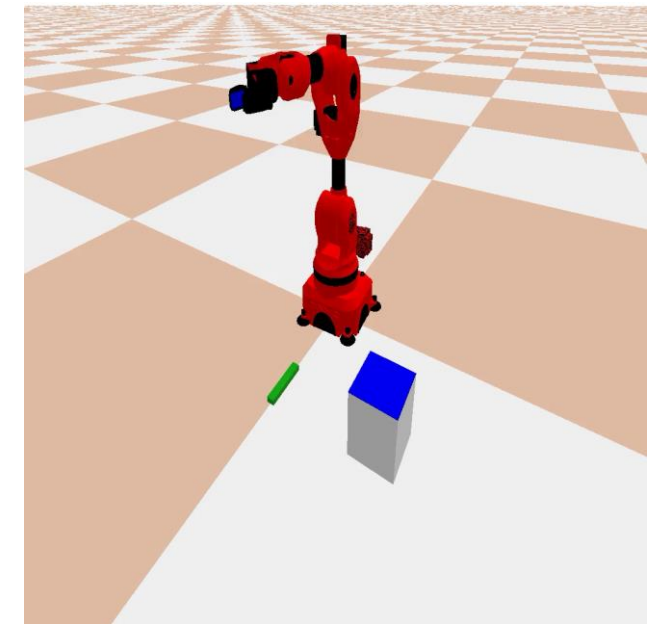


VBTI agriculture project

PLANNING & CONTROL 

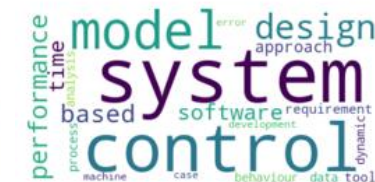
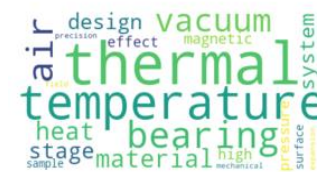


VBTI planning project



VBTI robotics project

NATURAL LANGUAGE PROCESSING 

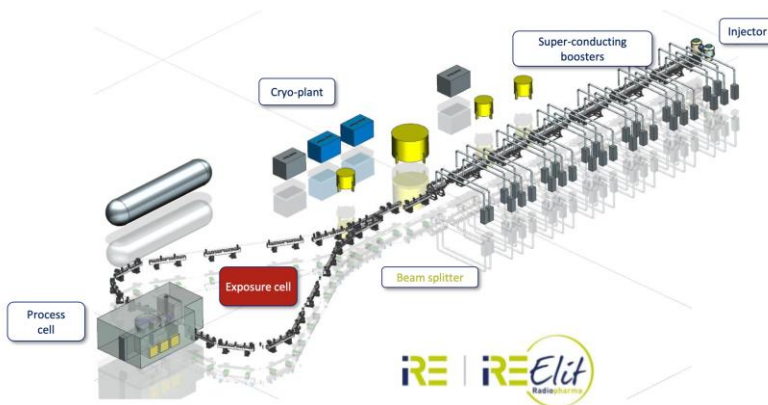


VBTI intelligent document search project

Smart Industry

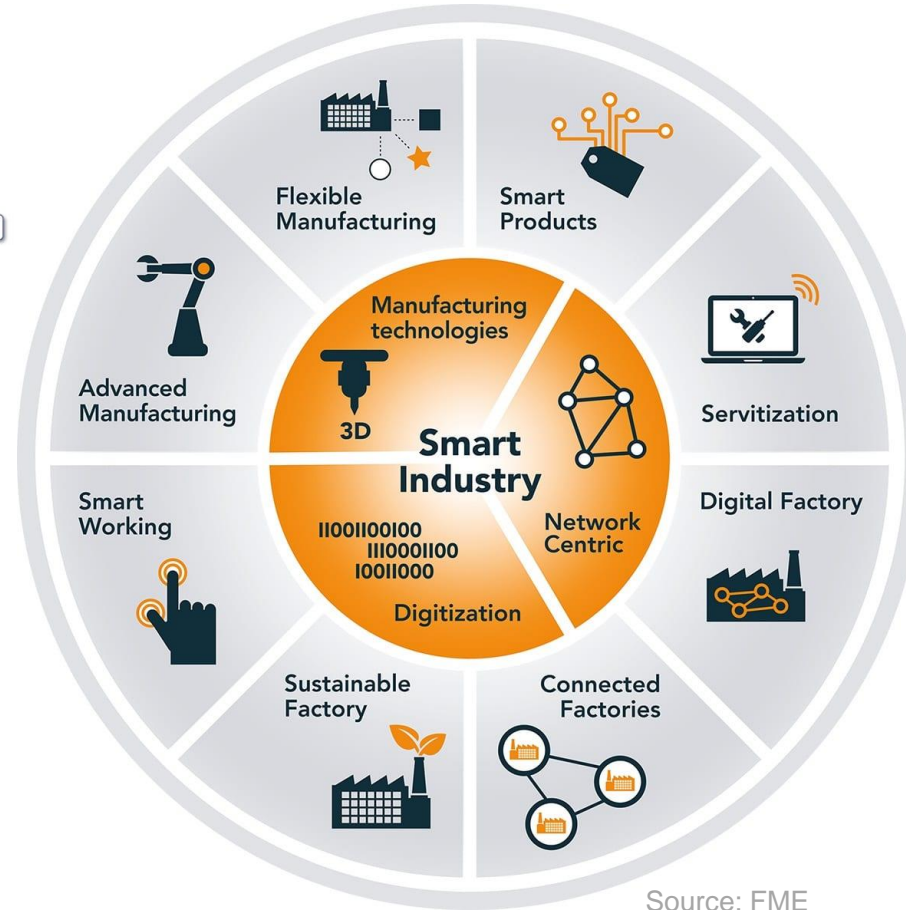
Example VBTI projects

DIGITAL TWINNING AND OPTIMIZATION



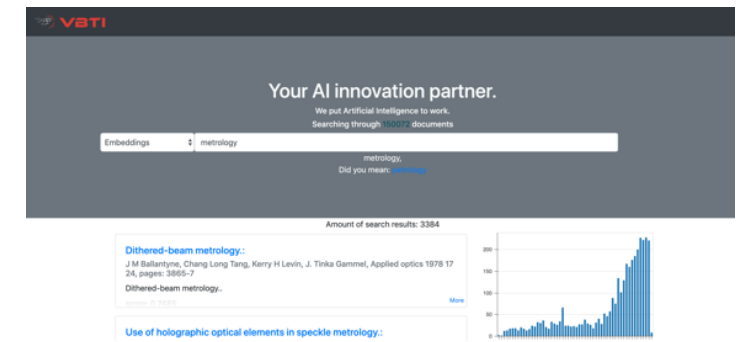
Source: New feasibility study for Mo-99 production – The SMART project, B.Deconninck

Digital Twin and AI optimization techniques are used to optimize the production of Mo-99.



Source: FME

INTELLIGENT DOCUMENT SEARCH



Source: VBTI DSPE project

NLP techniques are used to learn a (mechatronic) engineering domain language model to improve searching technical documents.

DEEP LEARNING TECHNOLOGIES

VISION

PLANNING & CONTROL

NLP

Deep Learning adoption barriers

- Complex AI technology stack
- Vast number of different techniques
- Transfer results from simulated to real world
- Compute resources
- Transfer academic (research) results to practice
- Hyperparameter tuning
- Blackbox models
- Combine AI with existing techniques
- Fast innovation pace
- Finding talent



VBTI Product: RapidVision

End to end solution for smart vision

DATA COLLECTION



DATA ANNOTATION



MODEL TRAINING



DEPLOYMENT



CUSTOMER KNOWLEDGE

VBTI KNOWLEDGE

Life cycle management

RapidVision

Contact us for co-development program and product availability!



ADVANTAGES

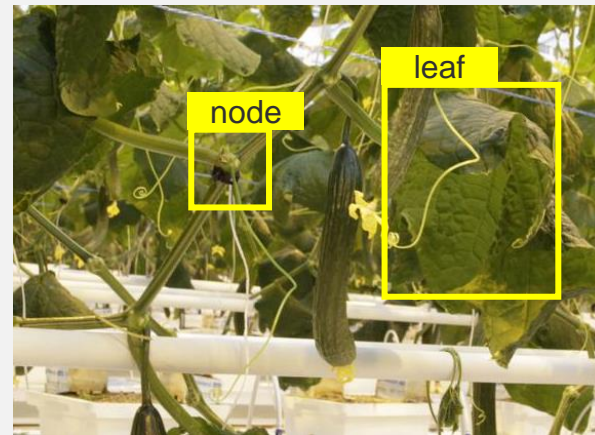
- Reduce workload human inspectors
- Improve quality control
- No deep learning knowledge needed
- Reduce cost

APPLICATIONS

- Visual inspection
- Smart robotics
- Image analysis
- and more



CLASSIFICATION



DETECTION



SEGMENTATION



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